stage. In comparing the totals of the paternal, maternal, and acquired cases, mine stand in the following order of results most benefited: First, acquired; second, maternal; third, paternal. Thompson's order is: First, acquired; second, paternal; third, maternal. While there is a strong resemblance between my cases and those of others, there are, as has been shown, points of difference, some of which are probably due to the especial influence of altitude. The theory that under certain conditions family phthisis grants immunity, or modified immunity or tolerance, receives some support from these inquiries, and from my own clinical impressions, but especially in the view that heredity cases when they do not die, as so many do, in the onset of the disease, are generally more chronic in their course toward death or recovery than acquired cases. And it may be said that the knowledge of inheritance, though depressing to the descendant, is also salutary in inducing prudence of life and a ready resort to medical aid when attacked.

THE ANTI-BACTERIAL ACTION OF ACETANILID.

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ACETANILID, also known chemically as phenyl-acetanamide, C_6H_5NH-C_2H_3O, is produced by the action of aniline upon acetic anhydride or acetyl chloride, and is an odorless, white, crystalline powder of low specific gravity, only very slightly soluble in cold water, but soluble to the extent of nearly 1 per cent. in boiling water.

Although well known as a therapeutic agent, acetanilid has only recently been advocated as a surgical dressing. Dr. Harrell,[1] surgeon of the Seattle Coal and Iron Company, found that the wounds of men injured in the mines were very difficult to heal, even when the best antiseptic agents known were employed; and in his endeavor to find some more efficient dressing, and being impressed by the strong anti-bacterial powers of some of the coal-tar derivatives, he tried acetanilid. His results were most encouraging, in every instance the wounds healing quickly, even where coal-dust and other foreign matter had gained entrance.

Since the publication of Dr. Harrell's article acetanilid has been substituted for iodoform in the surgical dispensary of the German Hospital of Philadelphia, and in only a few cases has suppuration occurred. In his report[2] Dr. Hand says that this powder is far superior to iodoform,

[1] Medical News, October, 1893.

[2] Medical News, vol. lxiv. p. 269.

the dryness of the wounds in all cases being remarkable. Another to follow Dr. Harrell's example was Dr. Knowles,[1] who, having used acetanilid in many severe surgical cases in veterinary practice during the past winter, is very enthusiastic in its praise.

From a clinical standpoint, then, it would appear that acetanilid is a germicide, or, at least, an antiseptic, and it is the object of this paper to ascertain whether laboratory experiments will support this clinical evidence. Is acetanilid a germicide, or is it simply an antiseptic?

The distinction between an antiseptic and a germicide should be well understood. Sternberg defines these terms as follows:

"Antiseptics restrain the growth of micro-organisms which produce septic decomposition without destroying their vitality. Disinfectants destroy the germs of infectious diseases. Germicides is an extended term of the latter—agents that kill non-pathogenic bacteria as well as disease germs."

But little has been published regarding the effect of acetanilid upon micro-organisms. Lépine, in an article on the "Physiological and Therapeutic Action of Acetanilid," in the *Revue de Médecine* for 1887, only incidentally touches this point. In the few experiments made only watery solutions of the powder were used, but in spite of this and in spite of the fact that he worked with very dilute solutions, the results would seem to indicate a slight antiseptic action.

Preliminary Experiments.—A number of preliminary experiments demonstrated that acetanilid had a decided inhibitory effect on the growth of the staphylococcus pyogenes aureus. In these experiments acetanilid crystals were added to nutrient gelatin in amounts roughly estimated to be about 10, 5, 1, ½, and ¼ per cent.; the tubes were then placed in the steam sterilizer from fifteen minutes to one-half an hour. Upon removing them the acetanilid was in some instances found to be entirely dissolved; in others it was still visible as an oily mass, varying in size with the amount of acetanilid added. Again, of two tubes containing the same percentage of acetanilid one would show this oily appearance, while in the other at the bottom would be a hard amorphous cake of acetanilid.[2] As the tubes gradually cooled off crystals of acetanilid appeared in all tubes containing more than 1 per cent. of the powder. The gelatin was then hardened as quickly as possible in cold water, that the crystals might be held in suspension, and by constantly shaking the tubes an even distribution of the acetanilid through the gelatin was obtained. The tubes were then inoculated with staphylococcus pyogenes aureus, this being the organism most frequently occurring in pus.[3] The result was in every instance a marked inhibition of the growth of the organism. Even in the tubes containing only one-eighth of 1 per cent. of acetanilid the inhibitory action was noticeable, though slight, if compared with a control-tube.

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[1] Medical News, vol. lxiv. p. 419.

[2] It was afterward learned that this was probably due to the uneven distribution of heat in the steam chamber; for by boiling such acetanilid tubes over an open flame the amorphous cake quickly became an oily mass, and this an instant later went into solution.

[3] According to Fraenkel, it is present in 80 per cent. of all cases examined.

Profiting by our experience in these preliminary experiments we now practically repeated them, using, however, every care to get the percentages correct. In the following experiments the more common organisms of surgical diseases were used: The pus-producing micrococci-staphylococcus pyogenes aureus, staphylococcus pyogenes citreus, and an unidentified non-liquefying coccus, sent to us and accidentally labelled staphylococcus pyogenes albus; also bacillus pyocyaneus, commonly called the bacillus of green pus. In all experiments the organisms used were in a vigorous condition.

Experiment I.—To each of six tubes containing 5 c.cm. of melted nutrient gelatin was added 0.5 gramme, or 10 per cent., of acetanilid. These tubes were then boiled, thus dissolving the acetanilid. Upon cooling most of the acetanilid crystallized out, filling the medium with crystals. The gelatin was then solidified as rapidly as possible in cold water, as before mentioned. As a result the gelatin was rendered perfectly opaque. Two tubes were then inoculated with staphylococcus pyogenes aureus, two with staphylococcus pyogenes citreus, and two with bacillus pyocyaneus; three control-cultures were also made in nutrient gelatin, free from acetanilid, and all the tubes were left to grow at the room-tempreratture under exactly similar conditions.

After *four days* the control-cultures were growing rapidly, but there were no signs of growth in any of the other tubes.

On the *eleventh day* there was very slight evidence of growth in the staphylococcus pyogenes aureus and the staphylococcus pyogenes citreus tubes, while the gelatin in their controls was practically completely liquefied. The tubes inoculated with bacillus pyocyaneus were still sterile with the exception of the control, which had grown extensively.

On the *twentieth day* the aureus and citreus tubes containing acetanilid presented the following appearance: On the surface and in the centre of the gelatin where the inoculating needle entered there was, in every case, a little circular pit-like depression, perhaps two mm. in diameter and two mm. in depth. This pit was partially filled with a thick, cloudy fluid, which proved, upon microscopic examination, to be filled with cocci. This was the only evidence of growth in these tubes, the gelatin on the sides and below this depression being still perfectly firm.

The bacillus pyocyaneus tubes were still sterile on the twentieth day, excepting, of course, the control-tube in which the gelatin was almost completely liquefied by the growth of the organism.

On the *fortieth day* the pit above referred to had become much deeper in the citreus tubes, but its diameter was unaltered, and the hollow seemed to contain no fluid. One of the aureus tubes presented a similar appearance, while in the other the whole upper part of the gelatin was liquefied for nearly one-quarter of an inch. The bacillus pyocyaneus still showed no evidence of growth.

Experiment II.—This experiment is similar to Experiment I., except that in this case 0.25 gramme, or 5 per cent., of acetanilid was used. The tubes were prepared as before, but the amount of acetanilid crystallizing out was not so great as in the first instance, therefore the gelatin, although still well filled with crystals, and consequently opaque, was not so much so as in the first experiment, and the growth could be better observed.

Fifth day. The acetanilid-tubes show no growth, while the control-tubes have developed much and are rapidly liquefying the gelatin.

Eleventh day. Undoubted growth in the aureus and citreus tubes containing acetanilid, with very slight liquefaction of the gelatin at the surface. Their control-tubes are entirely liquefied.

Twenty-seventh day. The gelatin in the acetanilid tubes inoculated with staphylococcus pyogenes aureus is about half liquefied by the growth of the organism; the gelatin in the similar citreus tubes is about one-quarter liquefied.

The tubes inoculated with bacillus pyocyaneus are still sterile, except the control, which is more than two-thirds liquefied.

Fortieth day. The growth and liquefication have slightly increased in aureus and citreus tubes. Bacillus pyocyaneus tubes are still sterile.

It is interesting to compare this experiment with a similar one performed by Jeffries[1] in his work upon iodoform. The experiments are in every way similar, excepting that Jeffries used 5 per cent. of iodoform. On the second day all the tubes were growing, and on the fourteenth day they were completely liquefied.

Experiment III.—Identical with Experiment I., except that 0.05 gramme, or 1 per cent., of acetanilid was used. In this case all the acetanilid went into solution on boiling, leaving the gelatin perfectly clear, when it was again solidified. After some days, however, the room becoming somewhat cooler, a few crystals of acetanilid appeared in different parts of the gelatin, mostly upon or near the surface. But this in no way deterred one from easily watching the developing of the organisms along the needle-track.

Sixth day. No evidence of growth except in the control-tubes.

Ninth day. There is a slight growth along the track of the inoculating-needle in the acetanilid tubes, while the control-tubes show rapid growth and much liquefaction. (See photographs of aureus and citreus tubes taken to-day.)

Twenty-second day. There is no visible increase in the growth of the acetanilid-tubes since the ninth day.

Fortieth day. Hardly any visible increase in the growth. Bacillus pyocyaneus tubes containing acetanilid are still sterile, their control-tube, of course, is completely liquefied.

In this experiment the non-liquefying coccus was also used, and on the fortieth day there was a meagre growth in the acetanilid-tubes along the needle-track, but none on the surface, while the control-tube showed more growth along the track and the thick surface-growth extended almost to the glass.

A similar experiment to the above was made with 1 per cent. iodoform in gelatin. In this instance the iodoform did not dissolve upon boiling, therefore the tubes were quickly cooled in ice-water, that the crystals might be evenly distributed through the gelatin. The tubes were then inoculated with staphylococcus pyogenes aureus and staphyloccocus pyogenes citreus. On the third day there were an excellent growth and marked liquefaction of the gelatin.

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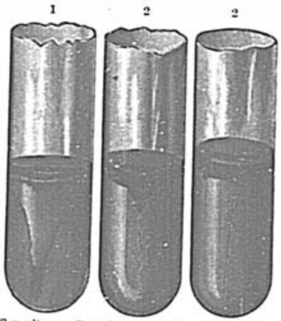
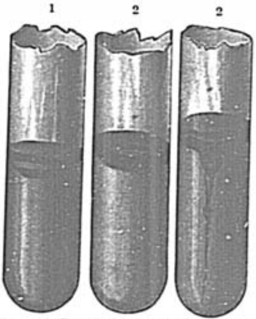
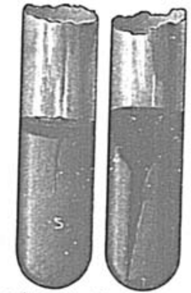
[1] AMERICAN JOURNAL OF THE MEDICAL SCIENCES, January, 1888.



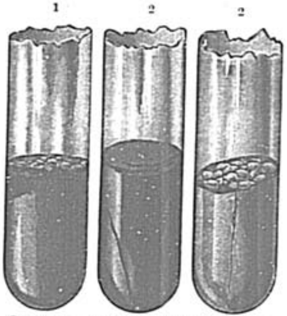
S. p. citreus. Growth after ten days. 1. Control-tube. 2. ½ per cent. acetanilid-gelatin tubes.



S. p. aureus. Growth after ten days. 1. Control-tube. 2. ½ per cent. acetanilid-gelatin tubes.



S. p. citreus. Growth after nine days in the acetanilid-gelatin and control.



S. p. aureus. Growth after nine days in 1 per cent. acetanilid-gelatin and control.

Experiment IV.—Identical with the preceding, except that 0.025 gramme, or ½ per cent., of acetanilid was used. In this instance all the acetanilid went into solution upon boiling, none ever crystallizing out again, and the gelatin remained to the end as clear as if nothing had been added to it.

Fourth day. All the control-tubes are growing rapidly, and one of the citreus and one of the aureus tubes containing acetanilid have begun to develop.

Eighth day. All the aureus and citreus tubes containing acetanilid show a slight growth.

Tenth day. The growth above mentioned has increased but slightly. The control-tubes, however, are much liquefied. (See photographs of aureus and citreus tubes taken to-day.)

Sixteenth day. But little increase in the growth of the aureus and citreus tubes containing acetanilid, and as yet little or no liquefaction. Very slight growth along the track in the bacillus pyocaneus tubes, except control, which is rapidly liquefying.

Thirtieth day. The aureus and citreus tubes have continued to develop slowly, and the gelatin is now about one-quarter liquefied. In the bacillus pyocaneus tubes there is still only a delicate line of growth along the needle-track, the control, of course, being entirely liquefied. In this experiment, also, the non-liquefying coccus was used, and on the thirtieth day the difference between the acetanilid- and control-tubes was marked. In the former, although the surface-growth was decided, it was by no means so extensive as in the latter. The same may be said of the track-growth.

It is interesting to note that in these series of experiments the inhibitory action of acetanilid was much more marked in the 1 per cent. than in the 5 per cent. or 10 per cent. tubes. It also seems evident that the growth of the bacillus pyocyaneus is much more affected by the presence of acetanilid than the other organisms. The more extensive development of staphylococcus pyogenes aureus and staphylococcus pyogenes citreus in the 5 per cent. and 10 per cent. tubes compared with the 1 per cent. tubes is inexplicable.

Several other experiments were made with 1 per cent. and ½ per cent. acetanilid gelatin, the only difference being that the gelatin was solidified on the slant. In some instances the tubes were kept upright, and in others they were kept at the solidifying angle. The inoculation in these cases being a surface one, the growth of the organism (staphylococcus pyogenes aureus alone was used) was more extended, as was anticipated, but liquefaction took place only slowly in the ½ per cent. tubes, while the 1 per cent. tubes did not liquefy at all, the growth remaining only a surface one.[1]

Similar experiments were performed with 1 per cent. and ½ per cent. acetanilid agar-agar. In the 1 per cent. tubes, as in the case of the gelatin, some of the acetanilid gradually crystallized out on cooling, but the ½ per cent. tubes remained perfectly clear. Line-inoculations with staphylococcus pyogenes aureus were made upon the surface from a liquefied gelatin culture, sometimes using a small looped and sometimes a straight needle. There was always a rich development in the

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[1] The experiments with the 1 per cent. oblique acetanilid gelatin tubes are not final. The tubes were only under observation for ten days, and up to that time liquefaction had occurred in only one of these tubes, and here but very slightly. At this period the room became overheated, melting the gelatin and spoiling the experiment. Unavoidable circumstances prevented its being repeated.

½ per cent. tubes, although this was much slower than in the control-tube, while in the 1 per cent. tubes there was no growth, or, at most, it was only meagre.

Experiment V.—Three agar-tubes were inoculated by drawing a small loopful of a partially liquefied culture of streptococcus pyogenes aureus once over the surface of each tube. The agar was then covered in two cases lightly, in one quite thickly with acetanilid. A control was also made and all tubes were left in an upright position at the room temperature.

Third day. Excellent growth on the surface of control-tube; others show no growth.

Fiftieth day. Acetanilid-tubes still show no growth.

This experiment was repeated several times, occasionally placing only a very thin layer of acetanilid on the surface of the agar. Staphylococcus pyogenes aureus was the organism generally used, but in one case the tubes were inoculated with the unidentified coccus. Sometimes the inoculation was made in a line only, and again it was made over the whole surface of the agar. The tubes were kept under various conditions, both in an upright position and at the angle of solidification; sometimes at the temperature of the room, sometimes at 37° C. The results were invariably the same: the tubes having only a thin layer of acetanilid upon the surface of the agar occasionally grew slightly for a few days, after which development ceased. In one instance, where the whole surface of the agar was inoculated and afterward covered here and there with a light layer of acetanilid, growth took place up to the crystals, but here it always ceased.

The results are quite different if oblique gelatin is used instead of agar, as the following experiment will show:

Experiment VI.—Several tubes of oblique gelatin were inoculated with streptococcus pyogenes aureus from a partially liquefied culture. The inoculations were made with a small looped needle, great care being taken to inoculate only the surface in a line and to avoid cutting the medium. The gelatin in these tubes was then covered with different thicknesses of acetanilid and the tubes with a control were left in an upright position.

Second day. Control-tubes growing rapidly and already liquefying, so that a little fluid is collecting at the bottom of the gelatin. Acetanilid-tubes show no signs of growth.

Fifth day. The acetanilid-tubes show evidence of growth, the gelatin being slightly and unevenly depressed along the inoculating-line. The gelatin in the control-tube is so much liquefied that it no longer retains its oblique position.

Tenth day. Acetanilid-tubes are so much liquefied that the gelatin no longer holds its oblique position.

This experiment was repeated several times; occasionally so much acetanilid was used that the space between the surface of the oblique gelatin and the glass was almost filled with it; again, only the thinnest possible layer of acetanilid was spread over the surface. Sometimes the tubes remained upright and sometimes at the angle of solidification, but the results were practically invariably the same: growth was generally first observed in the tubes containing the least acetanilid, but by the sixth day growth was visible, as a rule, in all the tubes, the control-tubes of the same date, however, being well advanced.

In these experiments the growth is entirely referable to the medium employed. Gelatin being rather soft, the organisms are able to penetrate and, by their peculiar chemical action, to liquefy it, thus to a certain extent freeing themselves from direct contact with the acetanilid. Although the growth is inhibited to a great extent, liquefaction having once begun, the development is very rapid.

In the case of agar the circumstances are quite different. It is impossible for the organisms to penetrate or liquefy this firm medium, and, although a slight growth may take place, the organisms must always be more or less in close contact with the acetanilid. It might be that in this instance the bacteria are mechanically separated from the medium.

This could easily have taken place when shaking the tube to distribute the acetanilid over the surface, but it is exceedingly unlikely, since, in similar experiments with gelatin, such a separation could also have occurred, but it never did, as shown by the subsequent growth.

Experiment VII.—Five per cent. of acetanilid was added to three tubes, each containing 10 c.cm. of bouillon. The bouillon was then boiled and the acetanilid dissolved, much of which afterward crystallized out upon cooling and sank to the bottom of the tubes. These and also three control-tubes, containing each 10 c.cm. of bouillon, were then inoculated with a medium sized loopful of staphylococcus pyogenes aureus from a liquefied gelatin-culture. After forty hours gelatin plate-cultures were made, each containing a small loopful of bouillon. The plates made from the control-tubes produced countless colonies, whereas the colonies on the plates made from the three acetanilid-tubes numbered 640, 160, and 133. Plates were again made in the same manner on the sixth day, and the controls again gave countless colonies, while the acetanilid-tubes gave between 5000 and 10,000.

It is interesting to compare this experiment with a similar one performed by Dr. Jeffries with iodoform:

"To three tubes, each containing ten cubic centimetres of bouillon, was added 5 per cent. of iodoform, and then one drop of water with staphylococcus pyogenes aureus. Three more tubes exactly the same, except for the iodoform, were prepared, and all six stood in the same rack. At the end of twenty-three hours agar-agar plate-cultures, each containing one drop of bouillon, were made. The plates made from the tubes with iodoform came very thick, too thick to count, yet distinct; those made from the simple bouillon were just like ground glass.

"The above was repeated three times, but the drop of bouillon was diluted in 10 c.cm. of water, a drop of which was taken for the plates. These could be counted, and gave from two to four times as many colonies in the plates made from the simple bouillon as in those from iodoform. For instance, one lot gave me 20,000, 20,000, 21,000, as compared with 5000, 6000, and 7000."

Comparing these two experiments, it is again evident that acetanilid has a much greater antiseptic action than iodoform. It was, for instance, a simple matter to count the colonies on the plates made with a small drop of bouillon after forty hours' growth, while Jeffries was obliged to dilute his drop of bouillon in 10 c.cm. of water before colonies could be counted. Indeed, in none of his experiments, did Jeffries obtain any marked inhibitory action to the growth of the bacteria caused by iodoform, and he was forced to conclude, as many other investigators have also done, that iodoform, from a laboratory standpoint, is only to a very slight degree an antiseptic.

In this experiment another interesting point was developed, namely: while the control-tubes were quickly clouded by the growth of the organisms, the acetanilid-tubes remained to the end almost perfectly clear; and while the scum forming upon the surface of the control-tubes was decidedly yellow, a similar scum, but forming much later, on the acetanilid-tubes was almost white. This loss of color when staphylococcus pyogenes aureus is grown in the presence of acetanilid was also observed by Lépine.

The following experiment is interesting as showing how acetanilid, when present even in very minute quantities, inhibits the development of staphylococcus pyogenes aureus.

Experiment VIII.—A saturated solution of acetanilid was made by allowing the crystals to remain in cold distilled water for several days. To several bouillon-tubes was then added an equal volume of this solution, to others one-half the volume. To a control tube was added an equal volume of water. All the tubes were then inoculated with staphylococcus pyogenes aureus.

Twenty-four hours. Control-tube is cloudy, the others clear.

Third day. All the tubes are cloudy.

The foregoing experiments demonstrate that acetanilid has a decided inhibitory action upon the growth of bacteria, and that it is, therefore, an antiseptic.

The following experiments were then undertaken to ascertain if acetanilid was also a germicide:

Experiment IX.—To 5 c.cm. of the saturated solution of acetanilid (saturated in the cold, as in Experiment VIII.) was added a large loopful of a liquefied gelatin-culture of staphylococcus pyogenes aureus. The tube was then well shaken, to insure a thorough separation of the organisms and an even distribution of them through the fluid, and immediately a large loopful of the mixture was spread over the surface of an agar-tube. For five successive days a similar loopful was carried over to agar, shaking the acetanilid-tube well each day. Agar-tubes were used instead of the gelatin plates, as the developing colonies can be counted nearly as well, and by placing the agar-tubes in the thermostat results are much more quickly obtained. The colonies upon the agar gave the following count:

Agar-tube made immediately after mixing = countless colonies.
" " after 24 hours = 200 colonies.
" " " 2 days = 60 "
" " " 3 " = 27 "
" " " 4 " = 5 "
" " " 5 " = 1 colony.

Experiment X.—Similar to Experiment IX., except that 5 c.cm. of a saturated solution of acetanilid (saturated by boiling, and therefore much stronger) were used:

Agar-tube made immediately after mixing = countless colonies.
" " after 17 hours = countless colonies, but less than above.
" " after 2 days = 130 colonies.
" " " 3 " = 62 "
" " " 4 " = 38 "

A similar experiment to the above, using 5 c.cm. of a supersaturated solution of acetanilid (saturated by boiling) gave a like result.

These experiments would seem to indicate that acetanilid has no marked germicidal action, the gradual decrease in the number of organisms being due to starvation.[1] In order to prove this supposition, similar experiments were made, using 5 c.cm. of boiled distilled water without acetanilid, and the average results of several experiments are as follows:

Staphylococcus pyogenes aureus in distilled water.

Agar-tube made immediately after mixing = countless colonies.
" " after 24 hours = 400 colonies.
" " " 2 days = 210 "
" " " 3 " = 100 "
" " " 4 " = 60 "

It should be borne in mind that the figures quoted in the above experiments cannot be directly compared. Although the same platinum-loop was used in all these experiments, it is impossible to imagine that the drop carried over in this loop was always of the same size. Slight variations in the size of this drop would make a difference of many thousand organisms, and therefore the number of colonies developing upon the agar from day to day might differ very widely even in several experiments performed in exactly the same manner. Nevertheless these experiments sufficiently demonstrate that the gradual diminution in the number of organisms was not due to the presence of acetanilid, but to starvation, since similar results were obtained when distilled water alone was used.

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[1] If, for instance, the same experiment is performed, substituting 5 c.cm. of a 0.25 per cent. solution of KOH for the acetanilid solution, no colonies are obtained after three hours. In this case the death of the organisms is not due to starvation, but to the germicidal action of KOH, weak as it is.

Experiment XI.—From all the gelatin-tubes containing acetanilid which were used in the foregoing experiments, and in which the little growth which did take place soon ceased, fresh gelatin-cultures were made after fifty days.

The fresh cultures were made from the 10 per cent., 5 per cent., and 1 per cent. acetanilid tubes inoculated with bacillus pyocyaneus remained perfectly sterile; but the cultures made from the ½ per cent. acetanilid-tube inoculated with bacillus pyocyaneus gave a typical growth.

In the case of the aureus and citreus tubes containing acetanilid, and the tubes inoculated with the unidentified coccus, the new cultures grew rapidly and typically in every instance.

This experiment indicates that acetanilid may have a very slight germicidal action, but it must be very limited, since bacillus pyocyaneus was alone destroyed, and this presumably only after several weeks.

Experiment XII.—From the agar-tubes in which no growth was visible after thirty to thirty-eight days, and which had been inoculated with staphylococcus pyogenes aureus (both line- and surface-inoculations), and then covered with different thicknesses of acetanilid, fresh cultures were made. The acetanilid was first partly lifted from the surface of the agar, a needle was then rubbed about where the organisms were supposed to be, and this needle then transferred to fresh medium. In nearly every instance a typical growth of staphylococcus pyogenes aureus resulted.

Another series of experiments was begun which consisted of mixing a drop of bouillon, made turbid with staphylococcus pyogenes aureus, with various amounts of dry acetanilid, and from time to time making cultures from this mixture. These experiments were unavoidably cut short, but the results as far as obtained only added more evidence to prove that acetanilid is not, or is at least only very slightly, germicidal.

CONCLUSIONS.—Although acetanilid has not been very widely employed as a surgical dressing, in the cases where it has been used, the results have been so successful that its superiority over iodoform seems very probable, and its use instead of the latter indicated. There is no danger of poisoning from absorption of acetanilid, and the utter absence of odor is an additional plea for its substitution for iodoform as a dressing.

Laboratory experiments uphold the clinical proof of its value as a surgical dressing, but since laboratory experiments are really no evidence of what goes on in the body the only conclusions to be drawn from the foregoing experiments are:

1. That acetanilid is probably to a very slight extent a germicide.
2. That acetanilid is decidedly an antiseptic.
3. That, as an antiseptic, acetanilid is far superior to iodoform, and that certainly from a laboratory, and probably also from a clinical, standpoint its substitution for the latter seems warranted.